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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/462,171	03/27/2000	EREZ BRAUN	104946	4753

7590 11/26/2001

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EXAMINER

JACKSON JR, JEROME

ART UNIT	PAPER NUMBER
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2815

DATE MAILED: 11/26/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

462171

Applicant(s)

Bram

Examiner

J. Johnson

Group Art Unit

2815

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 9/20/01
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-31 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-31 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____
 - ☐ received in this national stage application from the International Bureau (PCT Rule 1.7.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☐ Interview Summary, PTO-413
- ☐ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Other _____

Office Action Summary

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1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 17,18,20 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The previous rejection still applies. There is no enablement for diodes and bipolar devices. Unless applicant submits evidence of working devices the rejection will be maintained. Mere statement that n-type or p-type material may be attached to strands of DNA does not enable a working diode or bipolar transistor.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-16,19,28-31, are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mirkin.

The previous rejection still applies. Mirkin's device defines a "wire" because the gold clusters are attached to the DNA and only 60 angstroms apart. A potential difference applied across the ends of such wire will conduct electricity. There is no structural difference between applicant's claim 1 and Mirkin. Also the end clusters of gold define an "interface component". Such label does not structurally distinguish over Mirkin.

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5. Claims 1-16,19,21-31, are rejected under 35 U.S.C. 103(a) as being unpatentable over Mirkin with Hopfield. .

The previous rejection still applies. Hopfield teaches how to connect chains of molecular elements to connection pads for input and output. Mirkin clearly teaches his device has: "potentially useful optical, optoelectronic, and material properties...These properties might lead to applications including...quantum dot and nanostructure fabrication". Clearly connection of "networks" or "wires" as in Mirkin to connection areas for output or input is prima facie obvious structure to one of ordinary skill. Applicant's claim 1 is broad and structurally undistinguishing over the suggestions of the prior art.

6. Applicant's arguments filed 20 September 2001 have been fully considered but they are not persuasive. Arguments regarding p/n junction devices are unconvincing unless applicant submits experimental evidence of a working device. Mere statement that semiconductor material can be attached to a strand of adjacent DNA is unconvincing of a working diode or bipolar transistor. The particularly small sizes of these molecular devices requires proof of working diodes and transistors.

Arguments regarding Mirkin are also unconvincing of patentability. Mirkin's device is a "wire" because it is a strand of DNA with clusters of Au 60 angstroms apart. Such structure defines a wire. A voltage across the ends of the wire will conduct electricity similar to applicant. Moreover, mere labels such as "wire" or "interconnection conductor" do not structurally distinguish over the structure of Mirkin which may be likewise labeled. If applicant believes

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Mirkin's device is not a wire he should submit evidence that a current will not flow through the gold clusters.

Arguments regarding Hopfield are also unconvincing of patentability. Hopfield teaches how to connect long molecular chains to output pads for external connection. It would have been obvious to have practiced the same for a wire or semiconductor structure as Mirkin to at least apply a voltage across the clusters of gold or CdS. Such is fundamental in the art for electrically testing a device.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


Jerome Jackson, Jr.
Examiner